

Puget Sound Steelhead Recovery Team

August 6, 2015 Meeting Summary

Decisions and Actions from Meeting

Decision	Notes
Accepted the June 5, 2015 meeting summary as final with some edits.	The July 28, 2015 conference call summary will be shared soon with the Team and amended to the June 5 meeting summary.

Action	Assignment
1. Read TRT documents (available on Google Drive).	Team members
2. Create a diagram outlining the relationship/context of ESA planning documents, Statewide Steelhead Plan, etc.	?
3. Talk offline to figure out how the requests for Chinook and steelhead watershed-level work can sync together instead of be repetitive.	Elizabeth Babcock, Jeanette Dorner, and others
4. Think about the specific requests to the watersheds for what habitat information to collect for the watershed template and guidance.	Elizabeth Babcock, Joe Anderson, and others
5. Create a decision tree and pass to the Watershed Template Workgroup.	Neala Kendall
6. Share with Recovery Team when the technical writer can be available to help write sections of the Recovery Plan	Elizabeth Babcock
7. Schedule October and December Recovery Team meetings (through Doodle poll).	Claire Chase

Welcome & Old Business – Bob Wheeler, facilitator for the Puget Sound Steelhead Recovery Team (“Team” or “Recovery Team”), welcomed participants and led introductions (*please see end for a list of participants*). A question had come up about the relationship between the Washington Department of Fish and Wildlife’s wild steelhead gene banks and the steelhead recovery planning process, which the Team agreed to address at this meeting.

Announcements

- A Team member shared that a pre-spawn summer run steelhead mortality had been found in the South Fork Nooksack River.
- Another Team member shared that a second pit-tag reader array has been added to the mainstem of the Tolt River, in addition to the array previously set in the southern area. This additional data could be very helpful to the recovery planning process.

June 5, 2015 Draft Meeting Summary

The Team added two edits to the draft meeting summary: one to clarify that the Environmental Impact Statement (EIS) for the Elwha watershed is complete, but the EIS for the Dungeness watershed is nearly complete. The other edit was to change references of “populations” to “hatchery programs”. With those changes, the Team accepted the summary as final. It was noted that the July 28th conference call summary on marine survival research will be shared soon with the Team and later amended to the June 5 meeting summary, since it was intended as a follow-on discussion from the June meeting.

Level of Recovery Goals for Steelhead Recovery Plan – Elizabeth Babcock gave background for the Team to think about what type of recovery goals and recovery plan content are necessary for approval from NOAA’s National Marine Fisheries Service (NMFS).

- Important questions to consider are:
 - What has been done for recovery planning elsewhere, and what has worked well?
 - What can we learn from the Technical Recovery Team (TRT) and what will we learn from the life cycle model? How can that information be incorporated into the Recovery Plan?
 - What guidance do we want to give to the watersheds to develop their own watershed-level chapters?
 - From NMFS’s regional perspective, it would be helpful if the Plan could also give some guidance for what needs to happen within a Major Population Group (MPG), as well as specific populations.
- There is a wide range in the level of detail in NMFS-approved plans, and the ones with more detail are more helpful to both regional and local plan implementers.
- The steelhead Recovery Plan will likely be different than other recovery planning efforts because there is much less data available than for many other species.
- All the TRTs that NMFS convened followed the same model that the Puget Sound Steelhead TRT did.
 - NMFS needs to de-list at the Distinct Population Segment (DPS) level, which is the entire Puget Sound. The TRT further fleshed that out by identifying viability for the three MPGs, including spatial structure, diversity, abundance, and productivity.
 - 40% of the populations have to be viable in order for the MPG to be viable, and all three MPGs must be viable for the DPS to be viable.
- The 2007/2010 memo from Interior Columbia TRT is worth referencing to see how that TRT laid out recommendations for the role of each population in recovery.
- The TRTs used language such as “primary, contributing, sustaining”; terminology which the Team was almost certain came from NOAA. The use of one set of terminology versus another set of terminology is important, particularly when considering how the co-managers will or will not adopt that set of terminology.
- A Team member noted that some other recovery plans are very high-level, which can be useful for the regional regulators – but might not be that helpful for local biologists, co-managers and other implementers who are focused on specific areas and actions. This is an important consideration for the Team, too, because both levels are important but for different audiences.
- The Endangered Species Act (ESA) requirements are very general, meaning that the steelhead Recovery Plan would likely be approved by NOAA if it had a robust DPS-level section with the

Hood Canal and Nisqually pilot projects, plus guidance for watersheds to develop their local chapters. The question for the Team to consider is how much they want to put into the Plan about site-specific work.

- NOAA looks for recovery plans to be useful to plan implementers, but also to guide NOAA to prioritize where the focus is needed most.
- A Team member stated that due to the diverse DPS (32 populations) plus a range of watershed sizes, it would be most prudent to give guidance that focuses efforts on locations, populations/watersheds, and actions that the Team thinks have the greatest chance of providing benefit to steelhead. The life cycle model will likely help with that.
- It was noted that the steelhead TRT gave guidance for MPG-level viability while leaving some flexibility at the population level for viability.
- The Team discussed the idea of having minimum versus maximum expectations in the guidance for different populations, be they primary or sustaining. This is another important consideration for the Team as they continue, including discussing protection of the areas with highly functional habitat and restoring those populations at risk.
 - It was noted that the Interior Columbia TRT memo could be helpful as a model for this discussion since they included a detailed list of necessary and additional protections.
- The Team discussed trying to use as much information as possible, when available – including for population genetics, hatchery releases, and limiting factors. The more information available on genetic threats, the better designed a hatchery program will be.

Jeff Hard reviewed information from the TRT:

- The TRT had two main tasks: to identify the Demographically Independent Populations (DIPs) of steelhead and to identify and assess the viability of those populations.
 - The TRT identified historically independent trajectories.
 - Once they had that information, they assessed the viability of the DPS as a whole.
- They followed the viability model, using these four VSP criteria:
 - Abundance
 - Productivity
 - Diversity
 - Spatial structure
- Climate change was not incorporated into the TRT's work because they were tasked with assessing current risk. Incorporating climate change will be an important consideration for the Recovery Team, which is focused on looking to the future.
- Due to the large amount of data for the natural population of Snow Creek within a largely undisturbed area, the TRT used that as a benchmark of intrinsic potential for which candidate populations can qualify as a DIP.
- When identifying DIPs, the TRT compared each candidate population against the others and considered several questions that eventually led to identifying the 32 populations organized into three Major Population Groups (MPGs):
 - How far apart are the populations?
 - Are they genetically closely related?
 - What are the run-timing differences?
 - What is the hydrology of the different basins?

- Populations were considered independent if they met any of those criteria.
- Within the DPS, the TRT identified three MPGs:
 - Northern Cascades MPG: 16 DIPs (all summer-run populations are in this MPG)
 - Central and Southern Sound MPG: 8 DIPs
 - Hood Canal / Strait of Juan de Fuca MPG: 8 DIPs
- Distinguishing MPGs had to do with genetics, catastrophic risk, and eco-region. While somewhat weak, there were three main genetic clusters which correspond with the MPGs.
- The approach to viability started at the local level and worked to the regional level. They used the SPAS model developed by McElhaney et al. They used data from Snow Creek and for populations that did not have enough data at the local level, supplemented with MPG-wide data. Often, the data they had was variable, meaning that there is higher uncertainty about what the population will do.
- The TRT liked this approach because it captured the uncertainty. However, there are populations within the DPS with high certainty, like Nisqually, which means there is higher certainty in the future projections.
- Then they input data into a decision model, including:
 - Adult abundance relative to intrinsic potential estimates of abundance
 - The risk of reaching a quasi-extinction threshold
 - Population growth estimated by demographic models (productivity)
 - Estimated spawn timing and age structure distributions
 - Influence of hatchery fish
 - Occupancy of suitable habitat (including gradient, stream size, influence of snowpack)
 - Juvenile abundance and spatial structure, iteroparity, and smolt production from residents
- The patterns they saw from the modeling included:
 - Most populations scored low for all four VSP criteria
 - Nearly all DIPs (especially in the Central/South Sound and Hood Canal/Strait of Juan de Fuca MPGs) were not estimated to be viable, meaning that the probability of viability was below the minimum.
 - Viability probabilities were low across the DPS – each DIP viability feeds into the viability of the MPG. Then when looking at the DPS, it is most heavily influenced by the two MPGs with the lowest viability.
 - The life history and spatial structure in the Northern Cascades MPG viability probability is higher and very important compared to the other MPGs, and it has the greatest spread of abundance and productivity.
 - The probability of viability for the whole DPS right now is very low.
- All the metrics that fed into the decision-support model were put into a “stoplight chart” that is included in the draft Recovery Plan.
- The task for the Recovery Team is to get much more specific information at the population level.
- The TRT used intrinsic potential estimates to get adult abundance when that data was not available.
- There are some estimates of historical iteroparity rates (in the 10-15% range), though not many.
- The TRT reports are finalized and available, either via the NOAA website or through the Team’s Google Drive. Team members were encouraged to read these documents if they have not already.

Life Cycle Model – Joe Anderson presented information about the life cycle model that WDFW is producing for the steelhead DPS. Points and discussion included:

- The model has two stages: freshwater (estimating total number of smolts) and saltwater (using marine survival information to predict spawners). The intent is to model the spawner-smolt relationship in both stages.
- Two over-arching themes for the model:
 - Base the model on data we can test in the field to the degree possible, and
 - Represent uncertainty to the degree possible.
- The model uses a stock-recruit curve with two parameters (slope and capacity). The stock-recruit curve is based on the Beverton-Holt curve.
 - Slope is the productivity of the population.
 - Capacity shows the limit of the availability of critical resources and what the amount of population that can sustain.
- The capacity is important for the model, but there is little information about smolt abundance in Puget Sound to feed that. So they came up with a coarse method for estimating that based on available information.
 - When they are ready for people to parameterize the model, they will have the parameters as easy to change as possible and will give guidance for how to do change those parameters. That way, people can customize the model outputs based on the specific inputs for their local area.
 - They can provide a more general data set for when there is not good localized specific data (such as for age structure).
- They divided marine survival into two periods: early and late.
 - Survival is based on the results of the marine survival research which shows high mortality in a relatively brief early period, when the smolts are migrating out of the Puget Sound. Populations that are migrating further in Puget Sound have higher mortality (informally known as “death by distance”). There might be marine survival parameters unique to sub-regions of the Puget Sound.
 - The late marine period is shared by all populations in Puget Sound and will be based on existing smolt-to-adult data.
- A summary of the total number of smolts entering the marine environment each year is based on previous years’ estimates. Then they can populate the estimated number of returning adults.
- This information was shared with local biologists and co-managers at the workshops in late April and mid-May.
 - Overall, the feedback was that the overall structure and concept felt good with the right amount of detail.
 - There were a lot of comments and questions about the details, particularly the intrinsic potential model and how total habitat is being estimated.
- Iteroparity is incorporated in the model.
- Better quality smolts have greater survival rates, so to incorporate that in the model, they would need clear data showing “bigger is better”. Right now there is not a strong dataset showing a relationship between smolt size and survival, outside of Snow Creek.
- The model can use multiple inputs so it will get complex but the intent is to use as much information as can be useful. The hope is that it can be used for management decisions, as well.

- The Team distinguished the difference between short-term and long-term management decisions and actions. There might be more effort needed in the long-term, and while not a lot is known about that now it will be good for the Team to continue to think about this going forward.

Phil Sandstrom reviewed the user interface of the model. Points and discussion included:

- The modelers are trying to respond to comments made by local biologists and co-managers at the workshops this spring, which is to make the information accessible and the model transparent. They are making a user-interface that they hope will be accessible and transparent.
- The BaseCamp website is accessible to anyone, particularly local biologists, to learn the status of the modeling project and upload data to be input into the model.
 - Two previously unknown datasets have been uploaded to the site (from Stillaguamish and Hood Canal), that will be incorporated to the model, plus other documents.
 - They uploaded the draft report they provided to the Pacific States in mid-June, and a piece of the R-code they will use to run the model. The intent is to be as transparent as possible so lots of people can give feedback.
 - 78 people signed up at the workshops to receive more updates, and they now have login information for the BaseCamp site. It seems like there is good representation from several perspectives, including co-managers.
 - The BaseCamp site is intended for information sharing specific to the life cycle model.
- The user interface is meant to be used at the watershed scale, to allow local biologists and co-managers to customize the model for the specific data they have.
 - There are a lot of parameters that can be adjusted, such as iteroparity, marine survival, intrinsic potential, etc.
 - Once the parameters are adjusted satisfactorily, the model gets run to output two scenarios and a data table where everything is recorded.
- There is an additional interface with the model:
 - Users can choose the type of curve they want to use, be it Beverton-Holt, Ricker, or hockey stick. This is in direct response to a comment at one of the workshops, and choosing the type of curve is important to many local biologists and co-managers.
 - Intrinsic potential is incorporated in the population information, and rain-dominated systems versus snow-dominated inform the intrinsic potential value.
- While the model is being created to let people play by looking at various scenarios, it will be important to have training so there is a standardized approach to using the model. Additionally, there will need to be some oversight and the Team should discuss that how best to do that, maybe through an alert when unrealistic information is input, oversight by the Recovery Team, etc.
- The Team liked the idea at a future meeting to work directly with the model and develop scenarios to better understand the model, how it works, its sensitivities, and other aspects of the model.
- The Team discussed how to incorporate habitat restoration into the model so that it can be considered across the Sound in a similar way.
- The modelers have been in communication with the status and trends monitoring by the Northwest Fisheries Science Center, though that information have not been incorporated into the life cycle model yet. As the two projects continue, it will be important to keep close communication and share information as appropriate.

A Team member asked what decisions have been made or will be made about wild steelhead management zones, and what implications there might be for the viability analysis and life cycle model. Discussion included:

- Background:
 - Wild steelhead gene banks are watersheds supporting steelhead populations where fisheries co-managers agree not to release hatchery steelhead in a certain DIP. This is a strategy in the WDFW Statewide Steelhead Management Plan (2008), to minimize the impacts of hatchery programs on wild steelhead.
 - WDFW set up a series of guidelines for setting up a wild steelhead gene bank. Recently, they held public meetings to provide the public information on the process and risks/benefits of hatchery programs. Then they held public comment meetings for the public to provide input on where the gene banks could be.
 - After the public comment meetings, they will consult with the co-managers for a policy-level decision about where the gene banks will be designated.
 - There will be a minimum of one gene bank per MPG.
- A Team member asked that the gene bank decisions be considered along with the hatchery and management decisions that co-managers have already made. There may be undesignated DIPs that are located in basins where co-managers still do not plan to initiate releases.
- A gene bank would preclude the option of having a hatchery or broodstock supplementation program.
- The Team discussed how hatchery issues are controversial yet in order to have a comprehensive steelhead Recovery Plan, gene banks and other aspects of steelhead management must be addressed in an integrated/organized fashion.
- The outcome of the co-manager gene bank decisions will likely be made well before the steelhead Recovery Plan is complete, so more can be incorporated into the Recovery Plan before it is finalized.
- The Team discussed creating a diagram mapping the management planning efforts and documents that influence steelhead, partly as a communication tool to the public. It could include ESA plans, the Statewide Steelhead Plan, and other recovery planning efforts and documents.

Guidance to Watersheds – Tristan Peter-Contesse is working with the Watershed Template Workgroup to develop a template and guidance to be included in the Recovery Plan for how watersheds can write their local chapters. Questions for the Team to consider are: who in the watersheds will use the model's user-interface? What is needed to provide for people to use that? What other information can help refine the model? What habitat models will be used and what can be used in concert with the model? Who makes decisions about the outputs created by local biologists using the model's user-interface?

Discussion on these questions and others included:

- The Watershed Template Workgroup will continue to think about how to give guidance to prioritize actions at the local level, as well as options for how oversight could happen when people in the watersheds begin using the life cycle model.
- The model is not designed to get to site-specific actions, but it will show outputs that can provide guidance on general work and expected outcomes. The hope is through using the model's productivity and capacity parameters, there will be an approach and some tools or resources for

watersheds to work from. The model will be able to link habitat data with known information of critical population dynamics.

- The Skagit watershed is doing local recovery planning right now and it might be beneficial at some point to have people working on that effort talk to the Team about lessons learned so that can be incorporated into guidance to all watersheds, or at least the watersheds adjacent or similar to the Skagit.
- Estimating habitat is important, and there must be enough data from a sub-set of the area with GIS measurements and/or sampling of different life stages to understand the full picture.
- The Puget Sound Partnership has a recent dataset from an EPA-funded effort to capture 35 or so habitat attributes for every steelhead watershed. Some of the data might be more helpful than others (for example, the steelhead intrinsic potential layer could be compared to the Skagit data).
- The Team noted that when the request is eventually made to watersheds to start the work on their steelhead chapter, the region should be sensitive to other concurrent requests of watersheds (such as updating the Chinook chapters).
 - There was also discussion about how to find funding for the watersheds to do the work, which will take some time to acquire. Several Team members will work to identify the amount of funding to request by the end of the year.
 - A smaller group (including Elizabeth Babcock and Jeanette Dorner) will think about how the specific requests for Chinook and steelhead watershed-level work can sync together instead of be repetitive.
 - Habitat characteristics and density from the Skagit work can be linked to be building blocks to create the watershed template.
- A Team member noted that the template to the watersheds may be more focused on guidance in a number of different directions that can be customized by each watershed, though it will still ask for standardized taxonomy and other consistent pieces.

Portfolio of Elements – Susan O’Neil, Tristan Peter-Contesse, and Ed Connor have been working over the past several months to think about what to offer the watersheds in developing the local chapters.

Discussion included:

- This has blended the focus of the Watershed Template Workgroup and the Stresses & Pressures Workgroup for now.
 - Ed identified common stresses and pressures from the foundational steelhead documents, and translated them into the Puget Sound taxonomy. Now, Ed is working with Susan and Tristan to create a linkage library which will connect the documents, the taxonomy, what the stress/pressure/stressor does to the fish, connections and assumptions, etc.
 - This linkage library will take the place of what was called the Portfolio of Elements, which was from Open Standards. The approach now is through the linkage library, there will be a connection to VSP, and will allow people to do the work without having to understand Open Standards.
 - The linkages are the beginnings of conceptual models that you build from to incorporate what is relevant from the local area and the local known strategies. They are also intended to be the starting point for regional strategies, once the local chapters are complete.

- The linkage library notes which stresses have multiple pathways of impact, or what is informally referred to as a “super-stress”.
- The guiding principle is to focus on known pressures and use experts to connect VSP and life stages with those pressures. The hope is to use the life cycle model to understand where the priorities are.
- So far, the small group has drafted a few linkages with example narratives, and received feedback from the Team on their approach.
 - There is a lot of good literature available for quantitative relationships, which can inform this work.
 - The focus should be on the impacts of the stresses and pressures. It is also important to capture when the impact has been resolved or is being managed. However, the main focus is on what is keeping steelhead from flourishing.
- It was noted that there is a difference between qualitative and quantitative stresses and the difference between them has implications for how they are put into the life cycle model.
 - The Team agreed that the life cycle model is very quantitative, while the linkage library is more like an implementation tracking system.
 - Once the linkage library is built out, the Team could attach a measurement of the impact of an action, which would help get to the discussion about what types of actions to choose versus others.
- It was noted that when the linkages are turned into results chains, they will be able to capture positive outcomes from some pressures (by capturing actions and strategies).
- The Team was generally supportive of this approach and encouraged the small group to continue building out the linkage library. They were also encouraged to cite sources in case anyone has questions.

Geography – The Puget Sound Partnership has been thinking about how to ask watersheds to plan for steelhead recovery when there are already groups working on actions for Chinook recovery. They hope to think through the boundaries question internally at the agency, with local and tribal partners, and with the Recovery Team to get to a decision on steelhead management boundaries by the end of 2015. The Team discussed this plan and points included:

- It might be helpful to look at all geographies and initially estimate where there might be issues between two or more adjacent watersheds. That way, the discussions are focused on area-specific issues and not a region-wide discussion that would be less specific.
- The Watershed Leads will soon be briefed on this, and then there can be more work behind the scenes with areas that need more support to figure out the best management geographies.
- Two areas that the Team should think about is whether Island and San Juan Counties need to write their own local chapter, or if they do not need to since they have no natal watersheds. A possible way to incorporate those areas might be better suited in the marine survival section.
- The Team also considered if it would be possible to do technical work at the DIP level even if policy implementation and funding is at a higher scale.

Workgroup Progress Reports – Each Workgroup shared additional updates from their latest work that had not already been shared in the meeting.

Recovery Goals & Scenarios Workgroup

- The Team agreed to the idea of an outreach plan that would outline the roles of the Recovery Team and others to talk about recovery goals with local and tribal experts in the MPGs. They discussed that this could be to two different categories of people: to the attendees of the life cycle modeling workshops in late April and mid-May, and to the salmon recovery technical team that informs the management team. The second category might be split into two groups: policy-level people and watershed groups.
- The Team also discussed reaching out again to the WDFW Steelhead and Cutthroat Policy Advisory Group when the recovery goals are drafted.

Watershed Template and Stresses & Pressures Workgroups

- A small group from the two Workgroups is currently building out the linkage library, and hopes to have that complete by January 2016.
- The geography management question will hopefully be resolved by the end of 2015.
- Instead of finishing the template and guidance in February 2016, it will be later – so perhaps the Workgroups create an interim product in early 2016. The hope is to have the guidance available by August or September 2016.

Habitat Protection Workgroup

- A new subgroup formed after the last Team meeting, to focus on the Habitat Protection Plan part of the Recovery Plan. After preliminary discussions, Scott Powell drafted a narrative for the Background section, as well as an outline for the Habitat Protection Plan appendix. A Team member suggested cross-referencing that outline with the linkage library.
- Elizabeth Babcock is checking within NMFS to see what kind of support they can bring for writing sections of the Plan, including this section. There is a technical writer who can likely help, though it was currently unknown when she could be available to help with this Plan since she is currently working on another assignment with a short deadline.
- The Snohomish Basin Plan could be very useful for this section, and it is currently at review draft stage now so hopefully soon will be available to incorporate into the Plan.
- The Team discussed that it might make the most sense to write this module for watersheds to incorporate into their local chapters, but also write the module to address regional strategies for state and federal areas.
- The Team agreed to consider at a future date the optics of having the marine survival plan and habitat protection plan as appendices instead of in the body of the Recovery Plan.

Recovery Plan Outline & Assignments – The Team reviewed the current list of near-term assignments for writing the Recovery Plan. A few incomplete assignments were updated with new deadlines, and a few assignments are for Team members who were not present so they will be asked later to update their assignments.

Recovery Team Workplan – The Team used a timeline for the next 12 months to highlight some milestones, meeting dates, and deadlines for various pieces of the recovery planning effort. Below is a timeline outlining those dates:

Month	Recovery Team meetings	Recovery Plan writing	Workgroups	Deadlines
September 2015			Workgroups continue progress	
October	Meeting (TBD), check-in with Recovery Goals & Scenarios Workgroup	Technical writer will become available, through 9/30/16		
November			Offline conversation on guidance to watersheds: info gathering, relationship to Chinook Plan, updates, etc.	
December	Meeting (TBD), include briefing from Skagit recovery planning with Steve & Dave			Decision Tree as guidance to watersheds drafted (Neala Kendall)
				Decision on geography management
January 2016	Meeting (TBD), maybe use some time to play with life cycle model	Outreach to local technical experts about the life cycle model and draft recovery goals	Begin funding requests for watershed-level work	Linkage library built out
			Initial watershed template ready, including linkages and categories of info	Draft life cycle model report complete
February		Add outcome of gene bank designations		
March			Discuss how the life cycle model relates to the linkage library	
April				
May				
June				
July	Potential workshop to play with life cycle model	Outreach to local policy people on draft recovery goals		
August				Final draft of the template and guidance complete

Next Steps – The Team agreed to meet again in October; a Doodle poll will be sent soon to schedule that and the December meeting. The October meeting will provide more time to discuss the questions prepared for this August meeting, along with additional questions raised at this meeting:

- Do we have recovery goals for every population? Why or why not?
- What level of detail do we want for the recovery goals?
- How does the Team’s discussion/decision on recovery goals inform the life cycle model?
- Do we want performance structures for each population?
- How does the Recovery Team’s work on recovery goals dovetail with what co-managers have already identified as important?
- How do we ensure that the recovery goals meet a broad audience’s needs?
- For the life cycle model, are there other scenarios to include?
 - How to address in-stream flow in fish numbers?
 - How do habitat actions affect fish numbers?

Questions to consider for life cycle model and guidance to watersheds:

- What habitat models will be used?
- What will be used in concert with the life cycle model?
- How to get feedback from watersheds?
- How to get the appropriate level of specificity for watersheds to use in developing their local chapters?

Participants:

Name	Affiliation
Joe Anderson	Washington Department of Fish & Wildlife
Elizabeth Babcock	NOAA’s National Marine Fisheries Service
Ed Connor	Seattle City Light
Ned Currence	Nooksack Tribe
Jeanette Dorner	Puget Sound Partnership
Jeff Hard	Northwest Fisheries Science Center
Neala Kendall	Washington Department of Fish & Wildlife
Tristan Peter-Contesse	Puget Sound Partnership
Scott Powell	Seattle City Light
Susan O’Neil	Long Live the Kings
Phil Sandstrom	Washington Department of Fish & Wildlife
Amilee Wilson	NOAA’s National Marine Fisheries Service
Bob Wheeler	Triangle Associates
Claire Chase	Triangle Associates